

◆ ENERGY EFFICIENCY SOLUTIONS

Energy efficiency—using less energy through better technology—is the most cost-effective and fastest way to meet our energy needs. Numerous cities are realizing impressive returns from their investment in high-tech interior and street lighting, energy-efficient building standards and retrofits, and modernizing heating, cooling and other systems.

By replacing outmoded light bulbs in street traffic lights with highly-efficient LED (light emitting diode) bulbs, U.S. cities report over \$10.4 million savings every year. This simple solution is working for big cities like Denver (\$218,000/year savings), Kansas City (\$95,000/year), and Salt Lake City (\$50,000/year) as well as for smaller cities such as Keane, NH (\$3,854/year). Passaic, NJ reduced their annual energy bill by \$65,000 by changing the light bulbs at just 40 intersections.

Installing efficient compact florescent light bulbs in interior lighting in 60 municipally-owned buildings is saving Palo Alto, CA \$117,625 each year. The small town of Saco, ME has projected a \$15,000 annual energy savings from a proposed lighting upgrade in all of their school and municipal buildings.

Modernizing both old and new building with energy-efficient building designs and materials are delivering impressive energy cost savings. Dallas is saving \$246,000/year at one police headquarters by meeting the U.S. Green Building Council's Leadership in Energy and Environmental Design (LEED) standards (usgbc.org). Silver Fossil Ridge High School in Ft. Collins, CO reduced its energy costs by \$70,000/year in this way.

Large facilities such as Pittsburgh's new David Lawrence Convention Center (\$500,000 dollars saved annually) are significantly lowering their energy costs through energy efficient designs. Austin, TX is saving \$480,000 per year by retrofitting 40 schools with energy efficient measures. The Twin Falls, ID school district upgraded its 11 schools with more efficient lighting and improvements to the heating, ventilation, and air-conditioning systems, which is expected to reduce energy costs by \$3.5 million.¹

When cities put together a comprehensive energy efficient plan, the savings are even more striking. Austin's city-owned utility's residential and commercial energy efficiency program is saving \$28.9 million per year while reducing global warming pollution by 59,000 tons annually. Similar programs in Ft. Collins (\$4.4 million/year), Portland, OR (\$2.3 million/year), and St. Paul, MN (\$7.9 million/year) reap impressive savings as well.

ENERGY EFFICIENCY SOLUTIONS

City	Policy Adopted	Cost Savings (\$/Yr)	Greenhouse Gas Reduction (Tons eCO2/Yr)	Payback Time (Years)
ARLINGTON, MA	Energy efficient street lights installed. ²	\$96,000		0.5
ARLINGTON, MA	Town library lighting replacement. ³	\$9,000		1
AUSTIN, TX	City utility savings through residential & commercial energy efficiency programs ⁴	\$28,929,023	59,000	
AUSTIN, TX	Energy efficiency retrofits at 40 schools ⁵	\$480,000		6.9
BROOKLINE, MA	LED traffic lights installed ⁶	\$58,941	⁷	2.8
BROOKLINE, MA	Curbside Recycling ⁸	\$179,265		3.2
CAMBRIDGE, MA	Energy efficiency projects in municipal and school buildings. ⁹	\$470,850		5.25
CHARLESTON, SC	Energy-saving improvements ¹⁰	\$625,000	3,805	
CHICAGO, IL	Green Bungalow Initiative - Energy Efficiency retrofits(4 homes) ¹¹	\$900/home	56	4.6-8.1
CHICAGO, IL	LEED Platinum Chicago Center for Green Technology ¹²	\$29,000		

CHICAGO, IL	Retrofitting all 105 fire stations with energy efficient lighting in 2006 ¹³	\$250,000	3,515	
CHULA VISTA, CA	LED traffic lights installed ¹⁴	\$74,000		
CLACKAMAS, OR	LEED Silver Clackamas High School ¹⁵	\$69,000		
DALLAS, TX	LEED Silver Jack Evans Police Headquarters ¹⁶	\$246,000		
DENVER, CO	LED traffic lights installed ¹⁷	\$817,000		
DENVER, CO	Webb Municipal Building certified by USEPA's Energy Star Program ¹⁸	\$218,000		
FORT COLLINS, CO	LED traffic signals installed at more than 160 intersections ¹⁹	\$110,000 expected	3,000	3.4
FORT COLLINS, CO	LEED Silver Fort Collins Utilities Vehicle Storage ²⁰	\$9,000		
FORT COLLINS, CO	LEED Silver Fossil Ridge High School ²¹	\$70,000		
FORT COLLINS, CO	Energy consumption reduction targets of the Electric Energy Supply Policy ²²	Avg. \$4,444,444 ²³		
FREEPORT, ME	Repaired heating control systems in the Public Safety Building and the Public Library. ²⁴	\$320	1.85	
FREEPORT, ME	Energy-efficient lighting retrofit in Public Safety garage. ²⁵	\$1,620	9.3	4
KANSAS CITY, MO	2,518 LED traffic lights installed ²⁶	\$95,000		5.8 ²⁷
KANSAS CITY, MO	Energy Efficient Retrofits of City Buildings ²⁸	\$1,500,000		
KEENE, NH	Energy Efficient Equipment at Waste Water Treatment Plant ²⁹	\$27,914	182	
KEENE, NH	LED traffic lights installed ³⁰	\$3,854		1-2 ³¹
KING COUNTY, WA	LEED Gold King Street Center ³²	Avg. \$50,000 ³³		
NAPA, CA	Lighting retrofits ³⁴	\$69,630 projected		
NAPA, CA	590 LED traffic lights installed ³⁵	\$20,797 projected		
NAPA, CA	Parking lot lighting retrofits ³⁶	\$18,802 projected		
NEWTON, MA	35 energy efficiency projects in municipal & school district buildings. ³⁷	\$50,000	341	2
NEW YORK, NY	LED traffic lights installed at 11,600 intersections ³⁸	\$6,000,000		4.7 ³⁹
PALO ALTO, CA	LED traffic lights installed at 89 intersections ⁴⁰	\$120,000		
PALO ALTO, CA	Retrofit of lighting systems in 60 city buildings ⁴¹	\$117,625		6.6 ⁴²
PALO ALTO, CA	Computer energy savings ⁴³	\$17,500		
PASADENA, CA	Customer energy efficiency savings through City services and incentives ⁴⁴	\$2,173,000		
PASSAIC, NJ	LED traffic lights installed at 40 intersections ⁴⁵	\$65,000		
PITTSBURGH, PA	LEED Gold David L. Lawrence Convention Center ⁴⁶	\$500,000		
PORTLAND, OR	More than 13,300 LED traffic lights installed	\$500,000 ⁴⁷	2300	3 ⁴⁸
PORTLAND, OR	LEED Certified Oregon Convention Center ⁴⁹	\$110,000		
PORTLAND, OR	City Energy Challenge - energy efficiency ⁵⁰	\$2,300,000		
POWAY, CA	City Buildings Lighting Retrofit Program - 600 bulbs changed to fluorescent ⁵¹	\$9,640		
REDONDO BEACH, CA	Energy conservation measures ⁵²	\$200,000 projected		
SACO, ME	Proposed Energy Efficient Lighting in all school & municipal buildings ⁵³	\$15,200 projected ⁵⁴		5
SACRAMENTO, CA	23 Energy retrofit projects such as energy-efficient lighting, HVAC equipment, and LED traffic signals ⁵⁵	\$440,000		
SALEM, MA	Municipal parking garage lighting retrofit. ⁵⁶	\$21,887		2
SALT LAKE CITY, UT	Changed all lighting in city & county buildings to compact fluorescent	\$33,000 ⁵⁷		
SALT LAKE CITY, UT	LED traffic lights installed	\$50,000 ⁵⁸	716 ⁵⁹	
SAN DIEGO, CA	Energy-efficiency retrofit of City Administration Building Complex ⁶⁰	\$500,000		
SAN DIEGO, CA	Upgraded 86% of traffic lights to LED ⁶¹	\$1,300,000	7,437	
SAN DIEGO, CA	Energy efficiency upgrade of Operations Center Administration Building ⁶²	\$14,000	45	
SAN DIEGO, CA	The City's Energy Conservation and Management Program ⁶³	\$3,500,000		
SAN FRANCISCO, CA	LED traffic lights installed ⁶⁴	\$1,200,000 expected		
SEATTLE, WA	Energy Conservation Efforts by Seattle City Light ⁶⁵	\$63,000,000	420,000	
SOMERVILLE, MA	LED traffic lights installed. ⁶⁶	\$62,700 expected		2
ST. PAUL, MN	Comprehensive Energy Conservation Improvement Program ⁶⁷	\$7,934,000	81,497	
VISALIA, CA	Energy efficiency retrofits - LED traffic lights, HVAC systems, city lighting ⁶⁸	\$143,185		

◆ GREEN VEHICLE SOLUTIONS

Making our cars, trucks, and SUVs go farther on a gallon of gas is the biggest single step we can take to saving money at the gas pump, cutting America's dependence on oil, and curbing global warming. Many cities are cutting their global warming emissions by purchasing gas-electric hybrid cars and SUVs for their city vehicle fleet. By using less gasoline, hybrid vehicles release a fraction of the global warming and air pollution emitted by conventional vehicles while saving money at the gas pump.

By "greening" its automobile fleets with 113 hybrid vehicles, Chicago spends \$21,000 less per year in fuel and maintenance costs. Los Angeles' 572 hybrids, combined with over 900 alternative fuel vehicles, save a whopping \$9 million per year. Charlotte estimates that the fuel savings for its 21 hybrid cars (\$16,800-\$25,000/year) will offset the higher cost of hybrids in 2.5 to 5.5 years.

When it comes to greening city fleets, cleaner cars aren't the only way to earn "cool cash". For example, by placing police units on bicycles instead of driving cars, both Brookline, MA and Keene, NH are slashing costs and cutting pollution.

GREEN VEHICLE SOLUTIONS				
City	Policy Adopted	Cost Savings (\$/Yr)	Greenhouse Gas Reduction (Tons eCO ₂ /Yr)	Payback Time (Years)
BROOKLINE, MA	Police Units on Bicycles ⁶⁹	\$7,229	4.8 ⁷⁰	0.1
BROOKLINE, MA	Hybrids- 2 Toyota Prius ⁷¹	\$1,019	72	11.1
CHARLOTTE, NC	21 Honda, Toyota, and Ford Hybrids ⁷³	\$16,800-\$25,200		2.5-5.5
CHICAGO, IL	113 hybrid vehicles ⁷⁴	\$21,000		
DENVER, CO	55 hybrids (Prius) & use of biodiesel ^{75 76}	\$40,000	10 to 15	
KEENE, NH	Police Units on Bicycles ⁷⁷	\$805	6	
LOS ANGELES, CA	572 hybrid-electric cars, over 900 alternative fuel vehicles ⁷⁸	\$9,000,000		
MECKLENBURG CO., NC	6 Toyota and Ford Hybrids ⁷⁹	\$4,800-\$7,200		2.5-5.5
SALT LAKE CITY, UT	Green Fleet ⁸⁰	\$156,000 ⁸¹	327 ⁸²	

◆ RENEWABLE ENERGY SOLUTIONS

Cities around the country are investing in clean and renewable power like solar and wind energy to lower global warming emissions and create a reliable source of safe, homegrown electricity. Renewable power, combined with energy efficient buildings and appliances, is an essential and cost-effective solution for replacing electricity from dirty, fossil fuel power plants.

In Iowa, two wind turbines at Spirit Lake Elementary School are saving \$120,000 and reducing global warming pollution by over 2100 tons every year. The first wind turbine installed by the city of Hull, MA has been so successful—\$128,000 cost savings/year—that the city has put up a second one.

Solar panels plus efficiency measures are expected to lower energy costs at San Francisco's Moscone Convention Center by \$210,000/year, preventing the release of over 1,100 tons of global warming pollution each year. The 10 kilowatt (kW) solar thermal array at one fire house in Chicago is saving the city \$1000 a year.

Other renewable energy solutions such as geothermal and landfill methane recovery systems are also reducing city energy costs. A geothermal heat and cooling system at a municipal building in Park Hills, MO reduces energy costs by \$4,800 annually and will pay for itself in less than 5 years. Great Bridge Middle School's geothermal system in Chesapeake, VA saves \$41,500/year with a 6-year payback time.

Captured methane gas from a landfill helps to power Antioch Community High School in Illinois, reducing the school's energy costs by \$100,000/year, while keeping 4,409 tons of global warming pollution out of our atmosphere. In some cases, cities are also profiting by selling methane recovered from landfills. Upper Marlboro in Prince George's County, MD makes an average of \$720,000/year this way.

RENEWABLE ENERGY SOLUTIONS

City	Policy Adopted	Cost Savings (\$/Yr)	Greenhouse Gas Reduction (Tons eCO ₂ /Yr)	Payback Time (Years)
ALAMEDA COUNTY, CA	Eight photovoltaic systems installed throughout the county totaling over 2.3 MW. ⁸³	\$700,000	683	
ANN-ARBOR, MI	Landfill Gas-to-Energy Project ⁸⁴	\$35,000 ⁸⁵	71,907	
ANTIOCH, IL	Landfill Methane Recovery for power at Antioch Community High School ⁸⁶	\$100,000	4,409	
ARLINGTON, VA	Geothermal Heating & Cooling System at Taylor Elementary School ⁸⁷	\$20,800		5
BROOKLINE, MA	Home Composting Program ⁸⁸	\$11,616	13.5 ⁸⁹	0.1
CHICAGO, IL	10 kW Solar Thermal Array at 1 Fire House ⁹⁰	\$1,000		
CHESAPEAKE, VA	Geothermal Heating & Cooling System at Great Bridge Middle School South ⁹¹	\$41,500		6
HULL, MA	Wind turbine #1 ⁹²	\$128,850	1,200	
	Wind turbine #2	\$407,800 ⁹³	3,000 ⁹⁴	
KEENE, NH	Landfill gas-to-energy system ⁹⁵	\$55,000	140	5
LAKE ELSINORE, CA	Elsinore Valley Municipal Water District installed photovoltaic solar power systems on their maintenance and administrative buildings and carports. ⁹⁶	\$170,000	330	
NAPA, CA	Solar power system at Lake Hennessey Pump station. ⁹⁷	\$100,000 expected	140	
PARK HILLS, MO	Geothermal Heating & Cooling System at Municipal Building ⁹⁸	\$4,800		4.6 ⁹⁹
PATTONVILLE, MO	Landfill Methane Recovery for power at Pattonville High School ¹⁰⁰	\$40,000	2,000	
QUEEN CITY, MO	Geothermal Heating & Cooling System at Schuyler Elementary School ¹⁰¹	\$30,000		3 ¹⁰²
SACO, ME	Proposed Windmill ¹⁰³	Up to \$800 ¹⁰⁴		10

SAN FRANCISCO, CA	Solar Panels and energy efficiency measures in Moscone Center	\$210,000 expected ¹⁰⁵	Avg. 1167 ¹⁰⁶	
SAN FRANCISCO, CA	Southeast Water Treatment Plant installed 255 kW solar roof system. ¹⁰⁷	\$38,400	100	
SONOMA COUNTY, CA	Sonoma County Water Agency installed 522 kW of roof and parking system solar arrays. ¹⁰⁸	\$117,000	207	
SPIRIT LAKE, IA	2 Wind turbines at Spirit Lake Elementary School ¹⁰⁹	\$120,000	2,102	
TUCSON, AZ	Methane capture for energy at Los Reales Landfill ¹¹⁰	\$500,000 ¹¹¹	21,103	
UPPER MARLBORO, MD	Energy from Landfill Methane Recovery Sold by Prince George's County ¹¹²	Avg. \$720,000 ¹¹³	5,842	